discoDSP HighLife

Users Manual

Installation

To install HighLife, simply run the provided installation application.

Description

HighLife is a performance sampler including sample editor, five built in effects, flexible modulation route and morphable scheme.

Features

Overview

- Built-in wave editor.
- 32-Bit floating point based wavetables.
- 128 Programs with unlimited zones.
- Up to 32 voices polyphony (Multilayered zone sampling engine)
- Selectable interpolation engines: B-Spline, Sinc 64 and Sinc 512.
- Morphable scheme and automatable zone parameters (incl. cue and loop points).
- Syncable LFO with configurable Phase.
- Stepping-free modulation sends, pitch bend and modulation to morphing wheels.

Sampler Import formats

- Auto mapping when multiple files are opened at once.
- Samples: WAV, MP3, OGG, RAW, FLAC.
- Programs: AKP (Akai S5000/S6000), SFZ.

Sampler Export formats

- Samples: WAV.
- Programs: SFZ.

Program overview

- Unlimited zones.
- ADSR amplitude envelope
- ADSR enveloped filter and pitch assignable (both bipolar).
- -24dB/Oct filter modes: Lowpass/Hipass/Bandpass/Notch and disabled.
- Stepping-free Cutoff and Resonance.
- High quality Chorus, delay and reverb
- Wow factor effects: Daft and rock da disco.
- Full mono/poly and legato operation.

Zones overview

- Independent envelope amplitude, modulation envelope, LFO and filter settings.
- Automatable zone parameters (including cue and loop points).
- Up to 128 MIDI triggerable cues, with different start/end and loop settings each.
- Automatable per-cue pos/end/loop points, supporting swapping of cue range/loop
- markers.
- 4 Loop types (forward, bidirectional, backward, forward w/sustain).
- Group/Off by triggering settings.
- Amp Env, Mod Env and LFO (syncable), 24dB Filter (5 Types)
- Full MIDI Input triggering control.
- Chorus, delay and reverb sends.
- Glide with auto-switch control.

Sample editor overview

- Zoom up to 1:1 resolution.
- Clipboard: Cut, copy, paste and sample trim.
- Amplitude: Fade in/out, normalization and DC removal.
- Effects: Reverse, rectifier, sin/tahn drive, enhance, smooth.
- Cues and loops editing.

Morphing

HighLife layer contains two internal states: morph **source** and morph **sensibility**. Each state contains a unique set of all values. **Morphing** allows you to easily glide between these values.

The morph sensibility state is seen thru alpha blend, and can be modified by using **Command** key while adjusting the knob or enabling/disabling at **Options** > **Morph Edit**.
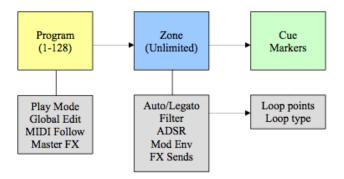
Once both states have been defined, you can easily morph between them by assigning **Wheel MOD** or using standard MIDI velocity if **Vel > Mod** is assigned.

This picture shows a morphed knob state. The first value is located at eleven o'clock and morph state at two o'clock. It will result in a filter cutoff increase when using the mod wheel or MIDI velocity if assigned.

Programs

HighLife can manage up to 128 programs, with an unlimited amount of zones each. Architecture is designed as follows:

Program Options

- **Master volume**: Controls the amount of volume in the instance, starting at 0dB. This is a global setting.

- **Pitch Bend Range**, **Glide** and **Auto Glide** are zone related.

- **Pitch Bend Range**: The pitch bender allows you to drastically change the pitch of the current patch in real-time. You can modify the pitch bend range from 1 to 24 semitones.

- **Glide**: Glides the pitch between the current note and a newly played note. The higher the value, the slower the transition progresses.

- **Auto glide**: When this led is enabled (by clicking it), the glide/portamento will be only applied if overlapping notes are played (legato).

Options > **Engine** settings will be applied to a single instance in the project.

Options > **Global Parameter Edit** enabled will affect all editable zones (filter modes, knobs) in the same program. Using **Shift**+**Cmd/Control**+**mouse** will have the same effect. ADSR led will turn orange once this mode is on.

Play Modes

- **Mono**: 1 voice is used for the layer. In this mode any note played will discontinue the previous note.

- **Legato**: A monophonic mode in which envelopes are not restarted when new keys are played.

- **Poly**: Polyphonic mode allows multiple notes to be played at once.

Filter Section

Once the samples are mixed, sound is next routed through the HighLife filter section. This section will transform the frequency response of the signal.

A filter is a unit that changes the magnitude of a range of frequencies of the sound, boosting or cutting these frequency values.

Basic Filter controls

The two most common filter parameters are:

- **Cutoff**: This value sets the frequency point affected by the filter response.

- **Q (aka Resonance)**: This value determines the amount of amplification of the range of frequencies surrounding the frequency (cutoff) point.

- **Key > Track**: Filtering applied thru the keyboard based on the note position..

- **Vel > Track**: Filtering applied thru the keyboard based on the MIDI velocity.

Filter Types

HighLife has 4 **Zero Delay Feedback** filter types plus a disabled mode. You may toggle through these using the leds located in the Filter area.

Available filter types follow:

- **BR**: Notch filter will cut the frequency range surrounding the Cutoff point, and will be processed thru the 24dB Lowpass filter explained above, but using a slightly shifted Cutoff frequency. Using this with high Resonance amounts will result in interesting vocal formants effects.

- **LP**: A 4 pole Lowpass Filter with -24dB per octave rolloff. This functions similar to the LP 12db, but with a steeper frequency curve response.

- **BP**: A Bandpass Filter, which allows only the frequency range surrounding cutoff point to pass through. Resonance controls the size of this bandwidth.

- **HP**: The opposite of the Lowpass filters, the Highpass will pass frequencies above the cutoff point and will cut all range below. This filter type has a rolloff of -24dB per octave.

Amplitude Envelope

Amplifier applies an envelope to the output gain of the current sound. The following controls apply:

- **Attack**: Controls for the time that envelope moves from note press (0) to full volume. (Does not apply to legato mode).

- **Decay**: This knob controls the time length between envelope gain goes from upper point (end of Attack) to Sustain level.

- **Sustain**: Sets the point at which the envelope stays while note is held. This state is held until the note is release.

- **Release**: Once the note is released, this knob will control the time in which the gain will fall from current envelope point (Sustain) into complete silence, finishing the voice use.

Note: Longer releases can result in many simultaneous voices and higher CPU usage.

- **Amount**: Adjusts the overall amount of the envelope.

- **Vel > Amp**: Adjust the overall volume of the instruments related to MIDI velocity.

- **Vel > Mod**: Adjust the overall morphing of the program related to MIDI velocity.
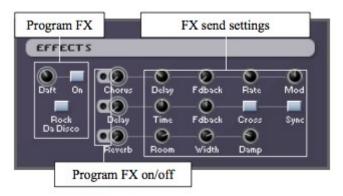
Modulation Envelope

Modulation Envelope allows easy ADSR (**A**ttack, **D**ecay, **S**ustain, **R**elease) envelope based modulation of the filter Cutoff and Pitch control.

- **Attack**: Controls for the time in which the filter / pitch envelope moves from 0 (note play) to full filter (based on the Envelope Amount, below).

- **Decay**: Controls the time length between the end of attack and the sustain level.

- **Sustain**: Sets the filter / pitch point at which envelope stays while note is continually pressed, once attack and decay have completed.

- **Release**: Begins once the note is released, controlling the time the gain will fall from current envelope point (Sustain) until complete.

- **Envelope > Cutoff Amount:** The Envelope Amount option controls the amount of the filter envelope. The < > arrows means it's of a bipolar nature.

- **Envelope > Pitch Amount:** The Envelope Amount option controls the amount of the filter envelope. < > arrows means it's of a bipolar nature.

Modulation LFO

Modulation LFO allows to create more expressive sounds by routing the internal Low Frequency Oscillator to four sends.

- **Phase**: Changes the value of the starting point of the LFO. If you want a **free running LFO** set it to max value.

- **Rate**: Velocity of the LFO. It can be synced to host tempo by clicking of the sync led.

- **Destinations**: The following destinations are available to the Modulation LFO:

    - **Amp**: Amplitude.
    - **Cutoff**: Filter cutoff. Bipolar value.
    - **Q**: Filter Resonance. Bipolar value.
    - **Pitch**: Global pitch by a range of **two** octaves. Bipolar value.

Effects

Chorus

- **Level**: Amount of the chorus applied. Turning it to minimum values bypass it.
- **Delay**: Controls how much of the signal is captured and repeated.
- **Fdback**: How many times the signal is repeated.
- **Rate**: LFO amount.
- **Mod**: LFO amount.

Delay

- **Level**: Amount of the delay applied. Turning it to minimum values bypass it. Delay can be **synced** or **switched to cross delay** by clicking the buttons in the section.
- **Delay**: Controls how much of the signal is captured and repeated
- **Fdback**: This controls how many times the delayed signal is repeated.

Reverb

- **Level**: Amount of the reverb applied. Turning it to minimum values bypass it
- **Room** and **width**: This sets the length of time that the reverb lasts for - higher settings simulate larger spaces.
- **Damp**: Controls the rate at which reverberant energy is absorbed by the various surfaces in the environment.

Wow-FX

These effects are program based.

- **Daft**: Special effect for those Daft sounds.
- **Rock Da Disco**: Instant sound puncher and pumper.

Zone Edit

In order to configure the rest of the Zone parameters after importing samples, you may switch to **Editor mode** by clicking Edit button.

Zone Edit properties

In the following area you can see and modify specific zone properties:

Information properties

- **Zone**: Name of the active zone. Click LED fonts to display a rename dialog.
- **File**: If available, path of the loaded zone. Use **< > arrows** to load previous/next wave located on the same folder. Click LED fonts to display file path or browse a new sample.
- **Chan**: Waveform channels.
- **Rate**: Waveform sample rate.
- **Size**: Waveform size.

Editable properties

In order to edit the following properties you need to **left click** the **LCD**, **hold** and **move your mouse up or down**.

- **Gain**: Gain in dB.
- **Panning**: Panning.

- **Coar**: Transposition value in semitones.
- **Fine**: Transposition value in cents.
- **Kc**: Defines how much the pitch variates with every note. Default value is 100, which means pitch will variate one hundred cents (one semitone) per played note. Setting this value to **zero** means that all notes in the region will play the same pitch, particularly useful when mapping **drum or sliced sounds**.
- **Group**: Exclusive group number.
- **Off**: Region off zone. When a new zone with a group number equal to off plays, this zone will be turned off..
- **Tg:** Sets the trigger which will be used for the sample to play. Value can be either attack (plays on note-on), or release (plays on note-off).
- **Root**: Root note. It will be used as reference once multiple cues are setup.
- **Vel XXX to YYY**: Velocity range the zone will respond to.
- **Key XX to YY:** Note range the zone will respond to**. Left click** to display full octave range drop down menu.
- **Sync:** Enables a loaded wave sync to host tempo. If a loop is loaded HighLife will set the number of ticks required to sync properly. This feature may be used with cue points as well.

Sample editor

In addition to zone parameters, HighLife also comes with a built in sample editor able to do basic audio operations, several effects and cue/loop edition.

Editing tips

- Double clicking selects all the active sample window.

- Once the wave is zoomed, scrolling can be made with scrollbar or mouse wheel.

- In order to activate any looping, you must set a cue first, which will be played at the defined root note.

- Wave zoom can be quickly done using SHIFT + mouse wheel.

Version History

Release 2.4

- Memory and performance Improvements.
- Refactored memory streams for better cross-platform compatibility.
- Improved handling of large sample sets.
- Enhanced memory allocation with aligned memory and SIMD-optimized operations.
- Fixed Bounce settings and SIMD implementation for SINC engine.
- Added Use Sinc-512 for Bounce switch.

Release 2.3

- Replaced Hermite interpolation with B-Spline for superior sound quality.
- Added 2x engine oversampling to reduce aliasing in nonlinear processors (filters, effects), improve impulse response accuracy, enhance transient reproduction, and smooth frequency response near Nyquist.
- Sinc-512 voice interpolation bounce now uses parallel processing for better performance.
- Added Bounce Engine settings.
- Added sustain pedal (CC64) support.
- Engine settings now sync across all instances in a project.
- SFZ Enhancements:
  - Full support for SFZ ADSR envelope parameters: ampeg_attack, ampeg_decay, ampeg_sustain, ampeg_release.
  - Improved parsing of group-level lovel and hivel.
  - Correct handling of group-level envelopes for all child regions.
  - Added in_group_section flag to correctly separate group vs. region context.
  - Fixed velocity range inheritance from groups to all regions.
  - Expanded SFZ compatibility: comments in sample lines, extra opcodes in sample path, multi-region group settings, special characters in paths and case-insensitive file search.
- Added Loop > Find Loop Points auto-detection.
- Added Cue > Add Cues from Beats (4–128 values).
- Added Zone Sync popup (4–128 values).
- Fixed sample window drag/select behavior.
- Enhanced vertical scroll wheel sample editor behavior.
- Enhanced wave editor design and behavior.
- Set default window size to 150%.
- Updated alert dialog styling.
- Improved filter cutoff display values.
- Improved zone renaming.
- Fixed GUI size recall in HighLife.settings XML.
- Updated functions for improved safety.
- Major framework update for better performance.

Release 2.2

- Introduced HiDPI compatibility and GUI resizing feature in the Options menu.
- Improved the user experience with various enhancements.
- Added support for importing the SFZ defaultPath opcode with relative path.

Release 2.1

- Introduced compatibility for Akai MPC 2000 SND file format.
- Enhanced the functionality of file dialog system.
- Support for ProTools AAX plug-in format (Windows and macOS Universal).

Release 2.0

- Binary builds for macOS Universal 2, designed natively for Apple Silicon.
- Comprehensive updates to the graphical user interface (GUI) look and feel.
- Flawless OGG, WAV, FLAC, MP3 loaders, ensuring improved reliability.
- Framework updates of major significance.
- New, visually appealing application icon.
- Optimizations to the sampling engine for superior performance.
- Standalone and VST3 builds for wide-ranging compatibility.

Release 1.3.0

- New LowPass, HighPass, BandPass and BandReject **Zero Delay Feedback filters**.
- Edit > Wave Editor <-> cursors on wave selection borders.
- Edit > Wave Editor Mouse wheel zoom based on mouse cursor position, Shift+Mouse wheel for quick zoom.
- Edit > Wave Editor Zoom in/out based on active selection.
- Drag'n'drop support (any supported wave sample/sfz programs if empty) Shift+Drop bypass sample replacement dialog.
- Options > Global Parameter Edit (On/Off) or using Shift+Ctrl/Cmd. ADSR led will be on when enabled.
- Options > Morph Edit (Tick On/Off).
- Edit > Properties < > File arrows browse sample folder on Edit > Sample Properties.
- Zone > Duplicate Zone, Delete All Zones functions.

Release 1.2.3a

- Enhanced waveform scroll supporting horizontal axis.
- Fixed waveform behavior with devices supporting inertia scrolling.
- Changed waveform mouse zoom to SHIFT + up/down or left/right wheel on Mac. CTRL for Linux/Windows.
- Fixed Chorus FX not sounding correctly.
- Fixed SFZ export.

Release 1.2.3

- Reworked wave editor view:
  - Scrollbar.
  - Mouse wheel scroll and zoom in/out with control key+wheel.
  - Zoom out limited to the wave length.
  - Selection active if > 2px. Full wave acts as selected when no selection is active.
  - Enhanced waveform visualization at higher zoom levels.
- Import/Export Sample/Program dialog opens at active sample Zone/Program path, falling back to last location when not available (default starts at user's Documents folder)
- Automatically enabled Edit menu items.
- Morphing opacity support to FX sends.

Release 1.2.2

- Cue/Loop points are removed after wave trim if they are not on the range.
- Auto adjust wave size after operation on wave.
- Drop down menus for Root / Key / To.
- < > buttons to browse waves in the current folder.
- Rename Zone function.

Release 1.2.1

- Fixed Options > Change zone on MIDI note behavior.
- A playing position line is displayed on wave area.
- FX Chorus/Delay/Reverb sends are enabled by default.
- Delay sync to tempo is enabled on by default.
- Fixed AU version number.

Release 1.2

- Panning now uses Michael Gogins law.
- EDIT > Cue > Add cues from sync. Adds distributed cue samples from Sync number.
- File > Import Sample Auto-Drum-Machine spread when selected several samples.
- Improved dialog windows.
- Broader LCD display.
- High contrast popup menus.
- Better color theme for wave display.
- Better preset init configuration. MIDI note to zone off by default.
- Removed MIDI keyboard.

Release 1.1

First release.

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